Living with Diabetic Kidney Disease

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Thanks to our speaker!



- Sue-Ellen Anderson Haynes
- Registered Dietitian Nutritionist and Certified Personal Trainer with interest and specialties in diabetes management
- Works at Joslin Diabetes Center as a Nutrition Educator

Objectives

THE ROLE OF OUR KIDNEYS, AND HOW CHRONIC KIDNEY DISEASE (CKD) AND DIABETES ARE CONNECTED.

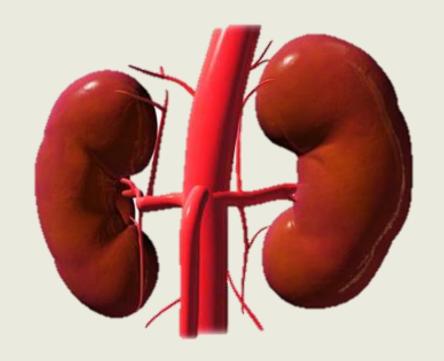
THE RISK FACTORS, AND WAYS OF PREVENTING DIABETIC KIDNEY DISEASE (DKD).

LIFESTYLE APPROACHES, INCLUDING NUTRITION THERAPY, FOR MANAGING AND IMPROVING DKD.



What Do The Kidneys Do?

- Remove waste
- Regulate water balance
- Balance chemicals
- Produce hormones
- Maintain bone health



Diabetes

- Blood sugar (glucose) control according to the American Diabetes Association (ADA):
 - fasting 70-130 mg/dL and 2 hrs after meals are less than 180mg/dL
 - × A₁C less than 7
- High blood glucose, poor control
 - Fasting BG >130mg/dL, 2hrs after a meal >180mg/dL
 - x A1C greater than 7
 - Values that are consistently out of range
 - Leads to kidney (renal) disease



- Heart problems
- Eye issues
- Poor circulation and healing
- Lowered kidney function *





eGFR (Glomerular Filtration Rate)

- Shows how well your kidneys are currently filtering waste
- The value does not improve
- Normal GFR is about 100-130

Albumin/Creatinine

- Measure of how much protein is in your urine
- Less protein in urine, less damage to kidneys
- Normal range is under 30 mcg/mg
- o 30-300 microabluminuria, 300 or more macroalbuminuria
- Can improve with medication



- CKD can be identified in two ways
 - x Kidney damage over 3 months
 - structure or functional changes of the kidney with/without elevated GFR + urine/blood test abnormalities
 - ▼ With/without kidney damage for 3 months or more + GFR <60
- OCKD has 5 stages (1 to 5)
 - Stages get progressively worse as kidney damage increases and GFR decreases
 - x Stage 5 is kidney failure x
 - GFR < 15 (or dialysis)

Complications of Kidney Disease

Lowered Kidney Function may include:

- Iron deficiency anemia
- Mineral-bone disease
- Hyperkalemia
 - ▼ Too much potassium- affects the heart
- Toxic build-up
- Swelling and fluid retention



So what is Diabetic Kidney Disease (DKD)?

"LONGSTANDING AND/OR POORLY
CONTROLLED DIABETES THAT CAN RESULT
IN A TYPE OF CKD KNOWN AS DIABETIC
KIDNEY DISEASE"



Diabetic Kidney Disease (DKD)

• Involves:

- o protein in urine (macro-albuminuria),
- worsening high blood pressure
- poor blood glucose control
- genetic background

Risk factors for DKD

Race

- Rate is increasing among Native American, Hispanic, and Black cultures
- Blacks 36x more like than whites
- Diabetes
- Genetics
 - o family history
- Age
- Smoking
- Existing complications from diabetes
 - Eye or nerve damage increase likelihood



Preventing and Managing DKD

Screening

- Urine test
- Blood test
- Lipid levels
- Hemoglobin
- Blood markers for bone and mineral health

Preventing and Managing DKD

Monitoring

- Check your blood pressure
 - <140/80, with DKD <130/80 or < 130/70</p>
- Check blood glucose and log your numbers
 - × A1C <7
 - ➤ Fasting Goal: 70-130 or 90-130
 - x 2-hours Post Meal: < 180
 - These values may vary with dialysis
- Use Continuous Glucose Monitor (CGM) if needed
- Your health care team will monitor certain labs 2-3 times/year
- Lifestyle and diet modification



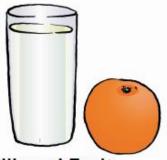
How do you manage or improve DKD?

LIFESTYLE CHANGES



Nutrition and Diabetes

- Foods that affect blood sugar
 - Protein → Minimal effect on blood glucose (sugar)
 - Carbohydrate → Large effect on blood glucose
 - Fat → Large amounts can effect blood glucose later on

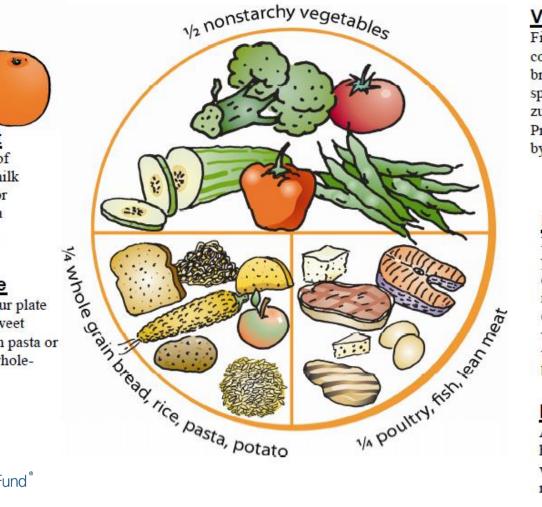


Milk and Fruit

Add an 8 oz. glass of non-fat or low fat milk or 6 oz. of non-fat or low fat yogurt and a small piece of fruit.

Carbohydrate

Fill a quarter of your plate with brown rice, sweet potato, whole-grain pasta or bread, or corn or wholewheat tortillas.



Vegetables

Fill half of your plate with colorful vegetables like broccoli, green beans, spinach, beets, carrots, zucchini or tomatoes. Prepare them without fat by steaming.

Protein

Fill a quarter of your plate with chicken, fish, lean meat, low fat cheese, tofu or egg whites. Remove any visible fat or skin before cooking.

Fat

Add 1-2 teaspoons of a heart-healthy fat, such as vegetable oil or trans-fat-free margarine.



Nutrition and Diabetes

Carbohydrate Foods

- Bread
- Cereal
- Pasta
- o Rice/Grains
- Starchy Vegetables
- Fruit
- Beans
- Juice
- o Soda
- Sugary Desserts



American Kidney Fund®

Carbohydrate Counting

Joslin Diabetes Center

Food Choice List

Carbohydrate Choices – 15 grams carb per serving					
Breads, Cereals & Grains	Beans*	Starchy Vegetables	Fruit		
1 slice bread (1 oz.)	½ cup beans, peas	½ cup corn	4 oz. piece of fruit		
2 slices low-calorie bread	(garbanzo, pinto,	½ cup peas	(apple, pear, etc.)		
1/4 large bagel (1 oz.)	kidney, white,	1 cup winter squash	6 oz. fresh peach		
6" tortilla or pita bread	black-eyed peas)	3 oz. baked potato	6½ oz. orange		
½ English muffin	½ cup lentils	2 oz. boiled potato	1¼ cup watermelon		
½ cup cooked cereal	⅓ cup baked beans	½ cup mashed potato	1¼ cup strawberries		
¾ cup avg. dry cereal	½ cup refried beans	2 oz. baked sweet	1 cup raspberries		
1/3 cup cooked rice/pasta	⅓ cup hummus	potato	³⁄₄ cup		
1 cup soup	* also count as 1	½ cup sweet potato	black/blueberries		
	lean meat choice		½ grapefruit		
Crackers/Snacks	Milk	Desserts/Sweets	½ cup (5½ oz.) mango		
3 cups air-popped popcorn	1 cup milk (fat-	1 oz. angel food cake	½ cup pineapple		
18-20 mini pretzels	free/skim, 1% milk,	2" sq. unfrosted cake	1 cup melon		
5-8 regular pretzel twists	2%, whole, lactose-	1¼" sq. brownie	17 grapes		
2-5 whole grain crackers	free)	2 small cookies	4 oz. banana		
3 graham crackers	6 oz. light-style	½ cup ice cream	12 cherries		
2 rice cakes, 4" across	yogurt	¼ cup sorbet	1 (3½ oz.) kiwi		
9-13 potato chips	6 oz. plain yogurt	1 frozen fruit bar	2 small tangerines		
9-13 tortilla chips	½ cup evaporated	½ cup sugar-free	2 Tbsp. dried fruit		
	skim milk	pudding	½ cup (4 oz.) juice		
	⅓ cup dry fat-free	1 Tbsp. jam/jelly	72 cup (4 02.) juice		
	milk	1 Tbsp. honey/sugar			

Typical Carbohydrate Requirement

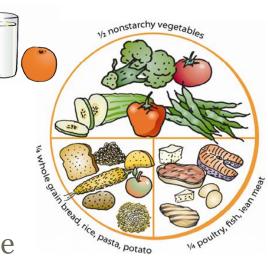
• Male: 45-60/meal, 15-20/snack

• Female: 30-45/meal, 15/snack

Lifestyle Changes

- Counting carbohydrates
- Measuring food
- Eat more meals from home
- Exercise!
 - 150 min/week moderate intensity exercise
 - Strength training
 - Walk after meals









What does having diabetes and kidney disease mean?

- Same principles as managing your diabetes
 - Medication
 - Monitoring
 - Modification of diet and lifestyle
- Slight changes to:
 - Medication → Some may be added or removed
 - Monitoring → Your provider will monitor additional labs
 - Modification → Food intake will change slightly



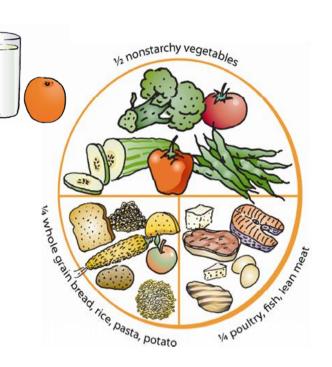
Dietary Concerns for patients with Kidney Disease



- Sodium
- Fluid
- Protein
- Potassium
- Phosphorus

Modification of Food Intake

- Same balanced plate
- Choose fresh foods from home
- Carbohydrate choice may change
- Vegetable choice may change
- Fruit choice may change
- Dairy products may be limited
- Protein may be restricted



Low Sodium Diet



Low Sodium Foods

High Sodium Foods

- Fresh fruits
- Fresh Vegetables
- Low sodium canned goods
- Grilled, Roasted meats







• **Tips**: Cook fresh foods, limit packaged products, be aware when dining out, stick to the basics, choose low salt soups and canned goods

Fluid

Needs depend on

- Stage of kidney disease
- Blood pressure
- Swelling present

• Fluid Intake

- Liquid at room temp
- Water
- o Juice
- o Soda
- o Coffee, Tea
- Broth
- Ice cubes

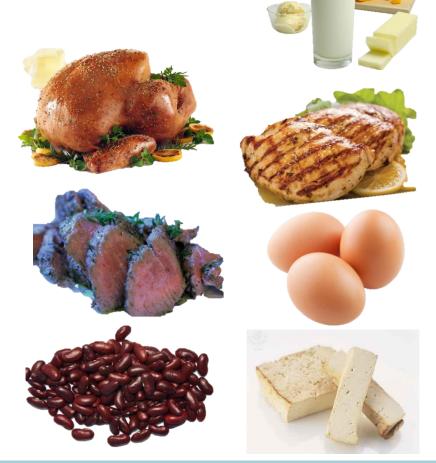




Protein



- What are protein foods?
 - o Walk/Roam
 - o Swim
 - o Fly
 - Vegetarian
- Protein Serving = 3-4 oz.
 - \circ 1 oz. protein = 7 g
 - \circ 3 oz. = 21g = deck of cards





Potassium

Low Potassium Foods < 120mg / serving

High Potassium Foods >250mg / serving





Phosphorus

Low Phosphorus Foods

High Phosphorus Foods

















Tips for Reducing Phosphorus

Try eating:	Instead of:
1 cup unenriched rice milk	1 cup milk
1 oz. cream cheese 1 oz. Neufchatel cheese	1 oz. cheddar cheese
1/2 cup pudding made with nondairy creamer	½ cup pudding
12 oz. diet ginger ale, or lemon-lime soda	12 oz. diet cola
½ cup cream of wheat	½ cup oatmeal
½ cup corn or rice cereal	½ cup bran cereal
Unsalted popcorn or pretzels	Handful of nuts

Sample Renal Diet

	Sample 1	Sample 2
Breakfast (45g carb)	White toast, 2 slices Trans fat free margarine, 1 tbsp. Cranberry juice, 1/3 cup Coffee/Tea, 8 oz.	Cornflakes, 1 cup Unenriched rice milk (or non-dairy creamer), ½ cup Plums, 2 Coffee/Tea 8 oz.
Lunch (45 g carb)	Grilled salmon, 3 oz. 2/3 cup pasta Mixed green salad, 1 cup Oil and vinegar dressing, 2 tbsp. Grapes, 15 medium Diet ginger ale, 8 oz.	Tuna Sandwich: Low sodium/water packed Tuna, 3 oz. Mayonnaise, 1 tbsp. Chopped onions, 1 tbsp. Chopped celery, 1 tbsp. Kaiser roll, 1 Apple, 1 medium Diet lemonade, 8 oz.
Snack (15 g carb)	1 pear	Fruit cocktail, ½ cup
Dinner (60 g carb)	Broiled garlic shrimp, 4 oz. Rice, 2/3 cup Asparagus, 4 spears Dinner roll, 1 Trans fat free margarine, 1 tbsp Pineapple chunks, ½ cup Diet root beer, 8 oz.	Baked pork chop, 4 oz. Noodles, 2/3 cup Steamed broccoli, ½ cup French bread, 1 slice Trans fat free margarine, 1 tbsp Cherries, 1 cup Water, 8 oz.
Snack (15 g carb)	Graham crackers, 3 squares	Vanilla wafers, 6

Summary

- Get regular check ups to monitor lab values & BP
- Take your medication(s) as prescribed
- Improve blood glucose control & monitor BG daily
- Lower your blood pressure
- Follow your meal plan and adjust when needed
- Exercise regularly and maintain a healthy weight
- Stop smoking

Questions?

Join us for next month's webinar!

Paired Kidney Exchanges and Opportunities for Kidney Transplant in Minority Patients



Friday, December 9 1-2 p.m. (ET)

Join us to learn about:

- The paired kidney exchange process
- ABO compatibility in transplantation
- The need for more live donor kidney transplants in the minority community

Go to <u>www.KidneyFund.org/webinars</u> to learn more and register!